




## Brookhaven National Laboratory

### Quarterly Performance Report

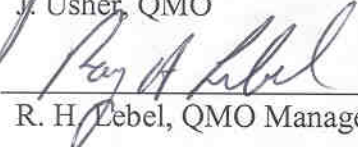
**4th Quarter FY 2005  
(11/18/05)**

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## **I. Executive Summary**

This report is the eighth edition of the Quarterly Performance Report and covers the fourth quarter of FY 2005. It is developed and issued by the Brookhaven National Laboratory (BNL) Quality Management Office, as required by Department of Energy (DOE) Order 231.1A, *Environment, Safety and Health Reporting*. The purpose of this report is to ensure that recurring events are identified. Events identified as recurring are processed in a Significance Category “R” recurring occurrence report.

During the fourth quarter of FY 2005, the Quality Management Office reviewed 49 issues and/or potential issues from the following documented sources:

- Occurrence Reports;
- ORPS nonreportable events logged by ORPS Categorizers;
- Radiological Awareness Reports (RARs);
- Procurement Nonconformances;
- Institutional Assessment Tracking System (ATS) conditions entered.

Analysis of the data included in this report indicated that the issuance of an “R” Recurring occurrence report concerning “Recurring Railcar Events” was warranted.

### **New Area Requiring Attention**

On 9/29/2005 a meeting was facilitated by the Laboratory Occurrence Reporting Coordinator to review/discuss the recent history of railcar events at BNL and the path forward concerning occurrence reporting. At this meeting a decision was made by the Environmental Restoration Projects Director (based on frequency and potential consequence) to re-categorize occurrence report EM-BH-BNL-BNL-2005-0009 to an “R” Recurring occurrence report titled “Recurring Railcar Events.” There will be no further railcar movement at BNL until appropriate corrective actions have been implemented.

### **Areas Requiring Continued Attention**

**Material Handling:** Recurring material handling problems were reported in the second quarter of FY 2004 in ORPS “R” Report CH-BH-BNL-BNL-2004-0005 and in NTS-CH-BH-BNL-BNL-2004-0002, “Recurring Material Handling Problems.” During the first quarter of FY 2005, DOE conducted an assessment of the BNL Integrated Safety Management (ISM) System and identified many of the same material handling personnel training and qualification issues previously cited by BNL, as well as other areas of concern that involve hoisting and rigging. The ORPS and NTS reports were updated to reflect the results of this assessment and to include additional corrective actions to address new areas of concern. Continued management attention is needed to ensure that all corrective actions are completed as scheduled and are effective in resolving the noted concerns.

## II. Introduction

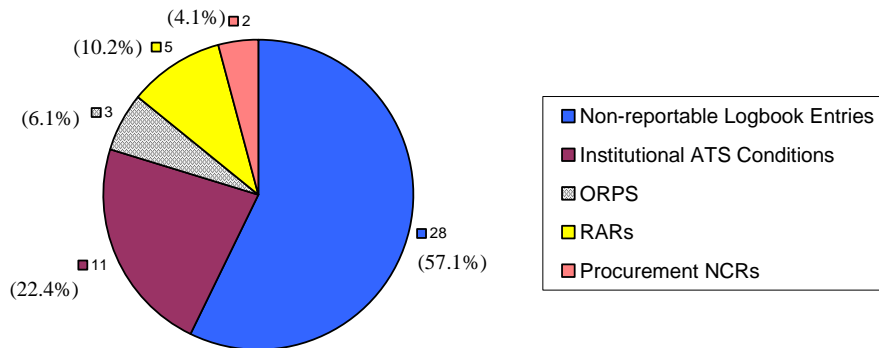
The ORPS Program is intended to: (1) ensure the timely collection, reporting, analysis, and dissemination of information on environmental, safety, and health issues, and (2) ensure the Department of Energy (DOE) and National Nuclear Security Administration (NNSA) are informed of events that could adversely affect the health and safety of the public or workers, the environment, the intended purpose of DOE facilities, or the credibility of DOE. The Quarterly Performance Report is performed to identify possible recurring program deficiencies and describe ORPS program activities at the Laboratory. If a recurring program deficiency is identified, it is reported to DOE via a Significance Category “R” recurring occurrence report. Section III of this report includes a summary of the documents reviewed, performance analysis of the issues/events reviewed and other data. Section IV summarizes the ORPS Program activities for the fourth quarter of FY 2005. Section V summarizes Areas Receiving Continued Attention.

## III. Performance Analysis

The following exhibits provide a summary of the issues reviewed for the fourth quarter of FY 2005, including a summary of the documents reviewed and trend analysis.

### A. Document Review Summary:

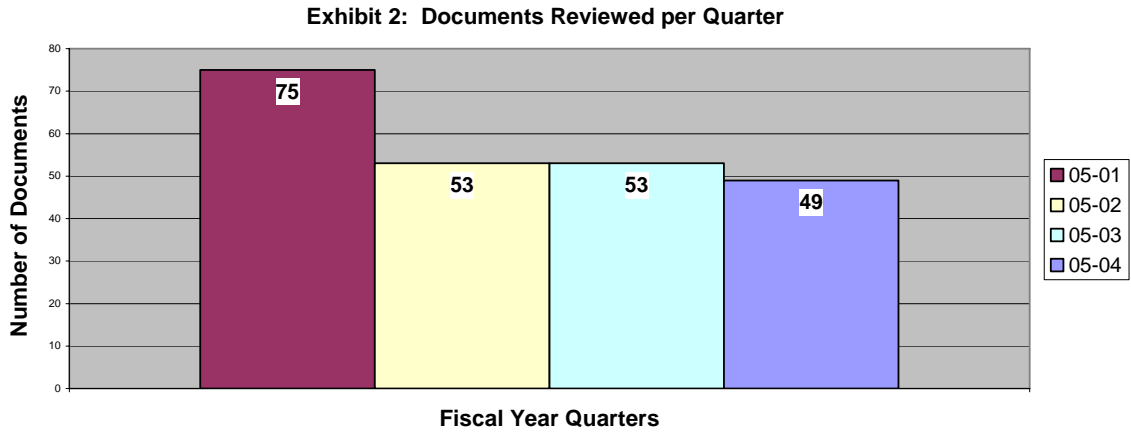
**Exhibit 1: Documents Reviewed for Fourth Quarter FY 2005 Performance Analysis**



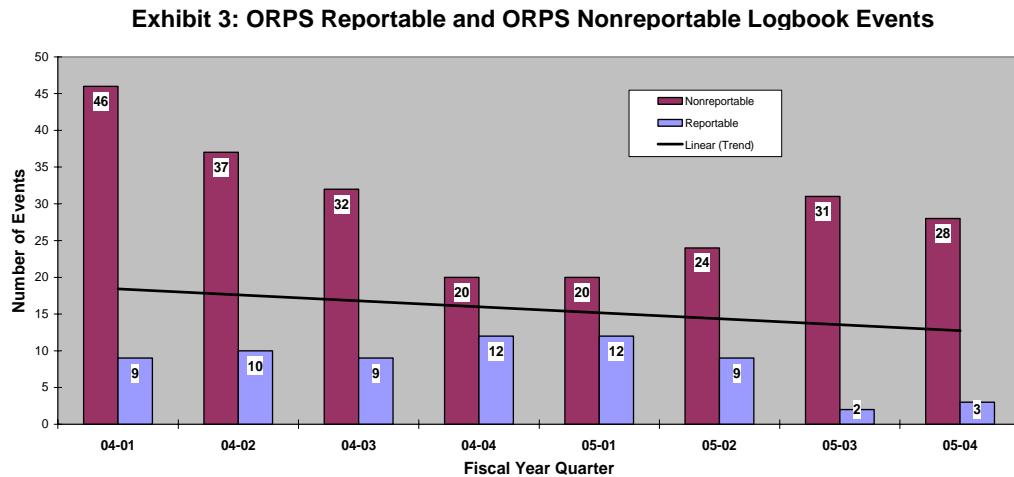
**Exhibit 1** indicates 49 documents were reviewed for the third quarter performance analysis of FY 2005. Approximately 57% of the documents reviewed were ORPS nonreportable logbook entries made by the eight BNL on-call ORPS Categorizers. Three of the nonreportable logbook entries were also captured as Radiological Awareness Reports (RAR).

**Note:** The eight BNL ORPS Categorizers are a cadre of volunteer senior personnel who have received significant training on the reporting criteria of DOE Manual 231.1-2, *Event Reporting and Processing of Operations Information*. They are on a rotating schedule and available 24 hours a day, 7 days a week to determine event reportability. Each determination that a categorizer renders is logged with

justification. It is important that BNL staff draw upon the categorizer’s expertise shortly after event/condition discovery so that a timely, accurate, and consistent determination of ORPS reportability is rendered.

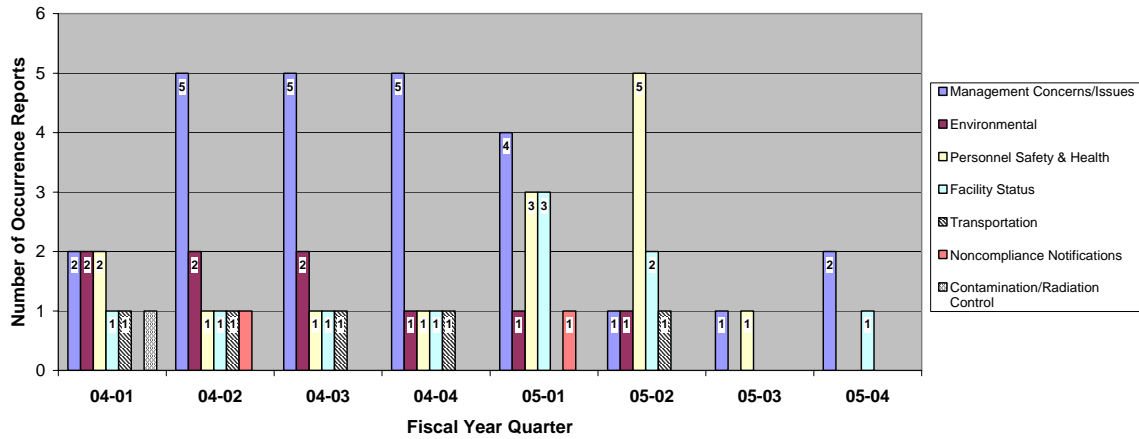


**Exhibit 2** depicts the number of documents reviewed per quarter over the last year. On average, 57.5 documents per quarter were reviewed.



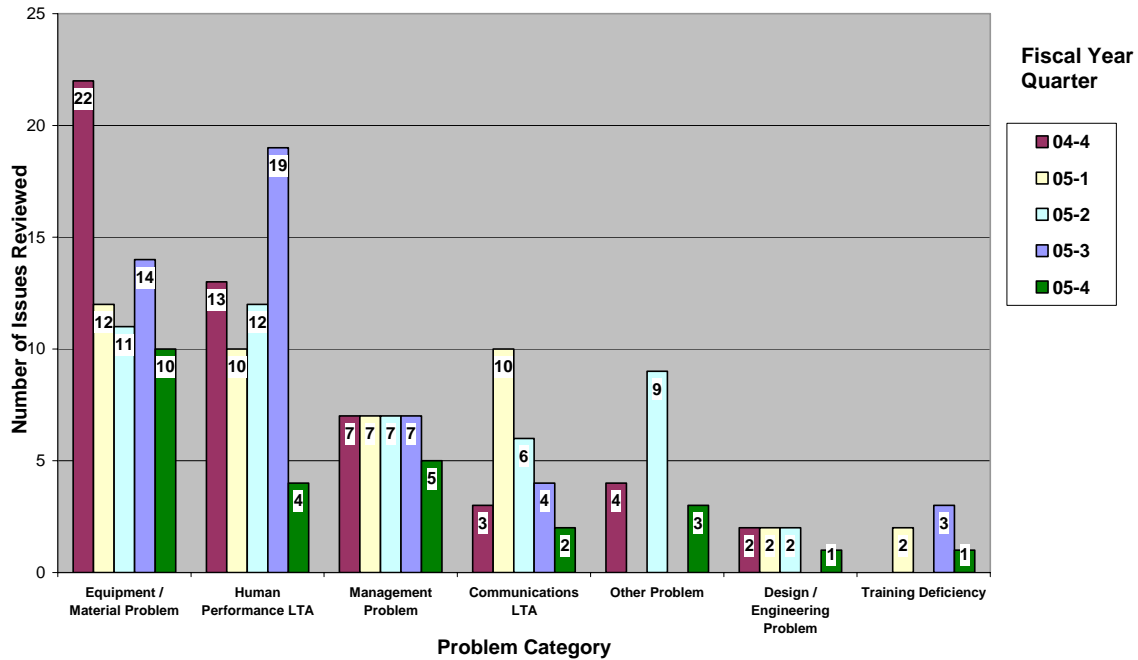
**Exhibit 3** shows the number of ORPS reportable events and events/conditions evaluated by the BNL ORPS Categorizers and subsequently determined to be non-reportable over the last eight quarters. No adverse trend is noted.

**Exhibit 4: Distribution of ORPS Reports by Reporting Criteria**



**Exhibit 4** shows the number of BNL ORPS reports coded by ORPS reporting criteria, for each of the last eight quarters. No adverse trend is noted.

**Exhibit 5: Analysis of Issues by Major Category**

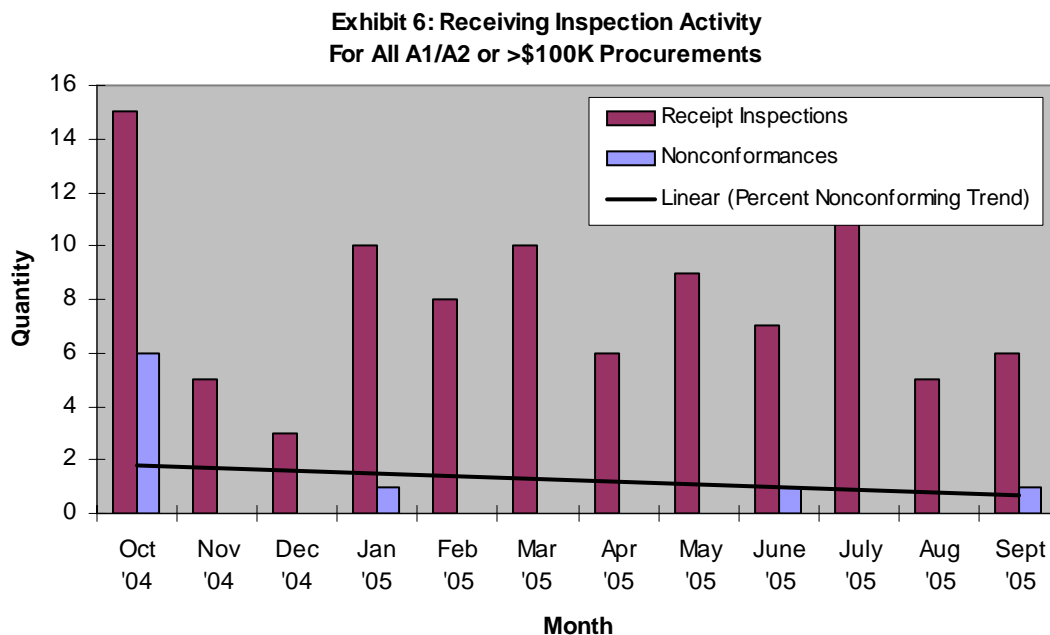


**Exhibit 5** is a trend of ORPS cause codes per quarter during last eight quarters. The associated issues were reviewed and apparent cause codes were assigned from the ORPS Causal Analysis Tree in DOE G231.1-2, *Occurrence Reporting Causal Analysis Guide*. Some issues were assigned more than one cause, and some issues were determined to be of no significance and therefore were not assigned a cause code. No adverse trend is noted.

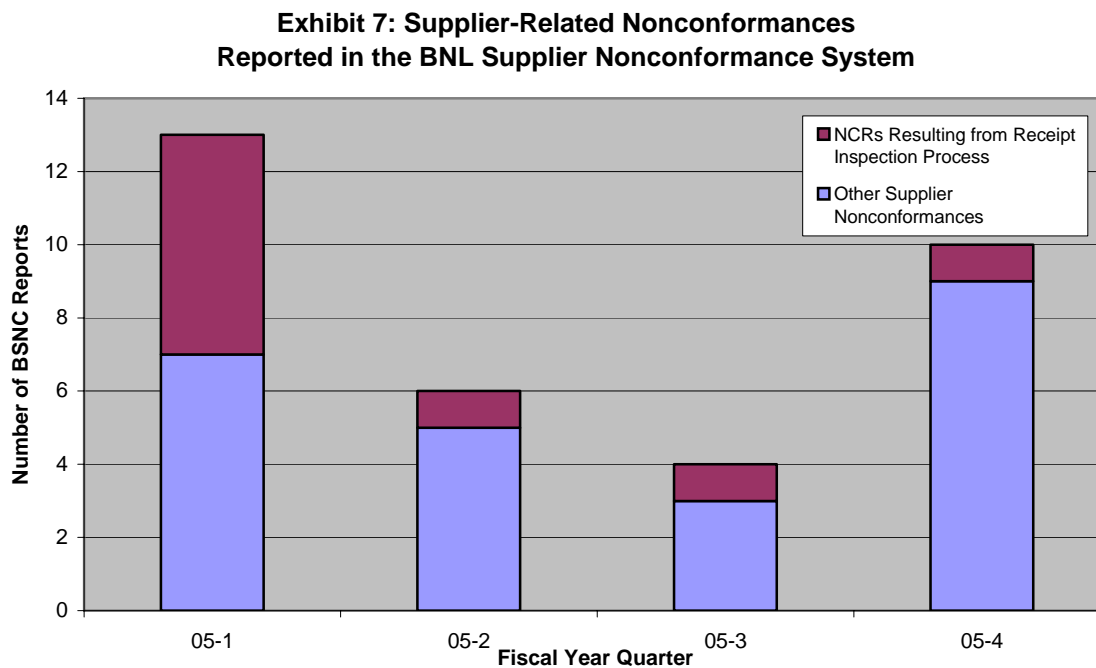
**Note:** The following are the definitions of the cause codes as defined by the DOE G231.1-2, *Occurrence Reporting Causal Analysis Guide*:

- An equipment/material problem is defined as an event or condition resulting from the failure, malfunction, or deterioration of equipment or parts, including instruments or material.
- Human performance less than adequate refers to an event or condition resulting from the failure, malfunction, or deterioration of the human performance associated with the process. This category is intended for individual actions or lack thereof.
- Management problem refers to an event or condition that could be directly traced to managerial actions or methodology (or lack thereof). A “management” problem can be attributed to management methods (directions, monitoring, assessment, accountability, and corrective action), inadequate resource allocation, work organization and planning, supervisory methods, and/or change management practices.
- Other problems include problems caused by factors beyond the control of the organization (i.e., legacy radiological or hazardous material).
- Communications less than adequate refers to inadequate presentation or exchange of information.
- A design/engineering problem is an event or condition that can be traced to a defect in design or other factors related to configuration, engineering, layout, tolerances, or calculations.
- Training deficiency refers to an event or condition that could be traced to a lack of training or insufficient training to enable a person to perform a desired task adequately.

## B. Procurement Quality:



**Exhibit 6** shows the results of receipt inspections, including the number performed, the number of nonconformances found, and the nonconformance trend over the past year. A significant positive (i.e., decreasing nonconformance) trend is shown.





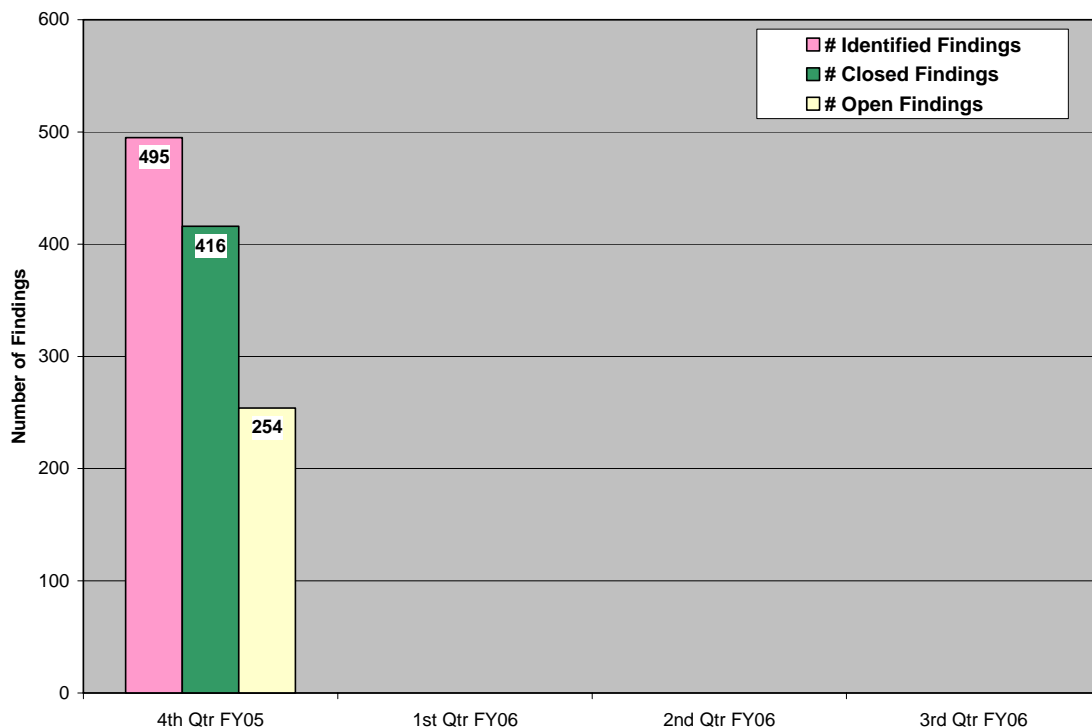
**Exhibit 7** represents the activity of the web-based BNL Supplier Nonconformance (BSNC) Reporting and Tracking System to include one nonconformance identifying a receipt process concern and nine nonconformances addressing off the shelf/inventory concerns. No adverse trend is noted.

### C. Environment, Safety, Health and Quality (Tier I) Inspections:

The Environment, Safety, Health and Quality (ESH&Q) (Tier I) Inspections Subject Area establishes requirements for Line Organization Environment, Safety, Health and Quality (Tier 1) Inspections of work areas. Tier 1 indicates the level of activity by line organizations, with additional tiers being at the Laboratory-level, and external. A procedure provides the framework for organizations to communicate and track to closure ESH&Q deficiencies and observations identified during their walk-through inspections of work areas at the Laboratory.

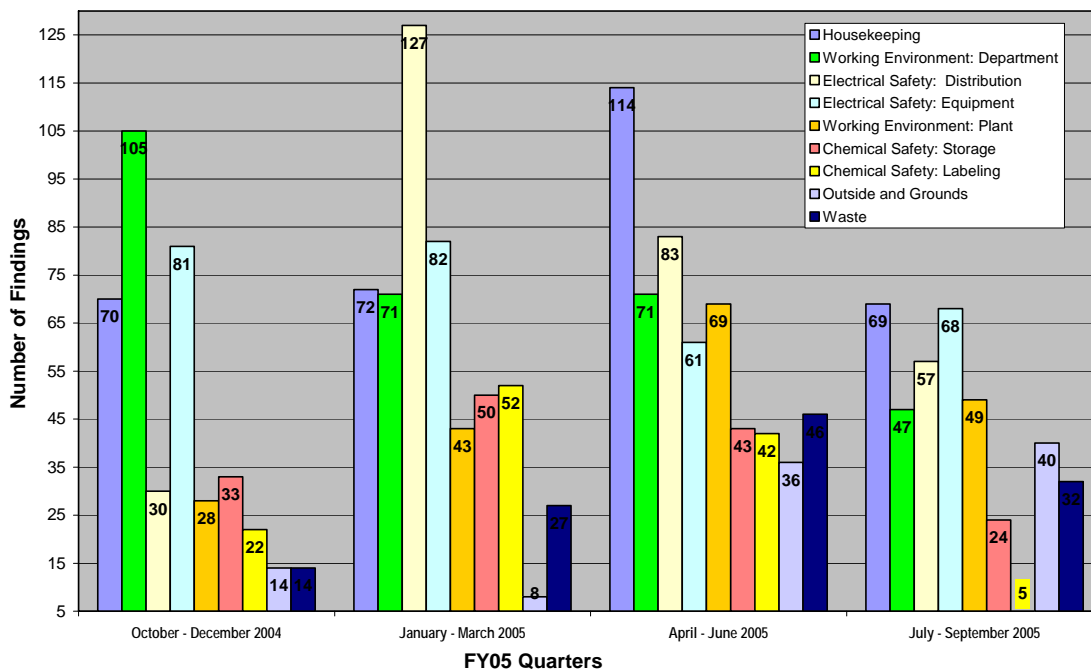
The collection of ESH&Q Tier I inspection data at the institutional level began during the first quarter of fiscal year 2005; although, this is the first quarter that closed and open findings have been enumerated. The evaluation and use of this data is still under development.

**Exhibit 8: Laboratory Tier 1 Inspection Findings Identified, Closed,**



**Exhibit 8** is a display of the number of findings identified per quarter, the number of findings closed during each quarter, and the number of open findings (identified during the quarter) remaining at the end of the quarter.

**Exhibit 9: Laboratory Tier 1 Dominant Findings**



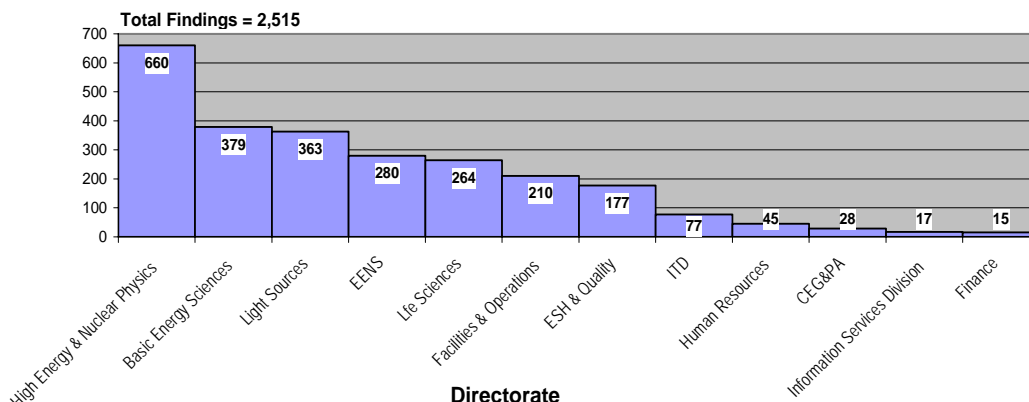
**Exhibit 9** is a display of the dominant Tier 1 inspection findings for each quarter. No adverse trend is noted.

**Note:** The following are the definitions of the nine categories noted above:

- Housekeeping - General housekeeping; waste container - design, availability; egress paths, i.e., floors, aisles, emergency egress; excessive storage; sanitary conditions of eating/food prep areas; areas free of insects, rodents, pests; and maintenance issues.
- Working Environment: Department - Fume hoods – inspection, labeling, use; eyewash routine flush; hazard information placards – correct/complete; EXIT signs posted appropriately; proper storage of heavy equipment/materials; refrigerators/freezers - labeled and functioning; appropriate warning signs/postings; ladders - fixed and portable in compliance; and appropriate emergency planning postings.
- Electrical Safety: Distribution - Electric distribution panels – labeling, installation, accessibility, missing knockouts; loose and missing covers on panels, raceways or outlets; emergency disconnect switches – labeling, accessibility; electrical outlets – adequacy; improper grounding; exposed conductors; soft cords used as permanent wiring; cable trays overloaded; unsecured junction box; and GFCI protection within 6 ft. of sinks/wet areas.

- Electrical Safety: Equipment - Condition of electric cords, cascaded power strips or extension cords; hand tools not grounded or double insulated; frayed power cords, extension cords, or heater tapes; ungrounded plugs; missing knockouts; illegal extension cord use; lack of strain relief; and missing covers/exposed wires.
- Working Environment: Plant - Adequacy of general ventilation, heat and/or AC; appropriate lighting; walking and working surfaces; emergency shower/eyewash annual inspection; emergency lighting; appropriate warning signs/postings; fall protection as required; and inadequate aisle-ways, trip hazards in walkway, load ratings not posted, missing floor or ceiling tiles, broken hardware on doors, windows or machines, exposed building insulation, overdue inspection on cranes, hoists and elevators, lack of toe-boards or improper railings.
- Chemical Safety: Storage - Area postings; segregation of incompatibles; container condition; no chemicals stored in hood; secondary containment (e.g., trays) as required; explosion proof and flammable cabinet/refrigerator/freezer as required; and legacy storage.
- Chemical Safety: Labeling - Chemical contents/hazard label; labels legible and in English; CMS bar coding; peroxide forming chemicals – monitored and date-labeled; and carcinogens labeled.
- Outside And Grounds - Access to buildings; Condition of stairs, ramps walkways; Modular building/trailer skirts intact; Grounds free of waste and debris; Condition/contents of waste bins; Building perimeter and rooftop maintenance area condition; Exterior equipment; Outside storage; Exterior lighting; Condition of emergency doors; Building security; External pests.
- Waste - 90-Day Collection Area – posting, contingency plans, container labeling, segregation, containment, secondary containment, storage, time limits, weekly inspection logs; Satellite Accumulation Areas – posting, open container, container labeling, secondary containment, segregation, non-waste items; Radioactive Waste Accumulation Area – posted, proper storage, labeling, time limit, monthly inspection log; Battery collection – posting, segregation; Oily waste receptacle available/used; Solder recycle; Regulated medical waste noncompliance.

**Exhibit 10: Laboratory Tier 1 Quarterly Inspection Total FY2005 Findings by Directorate**

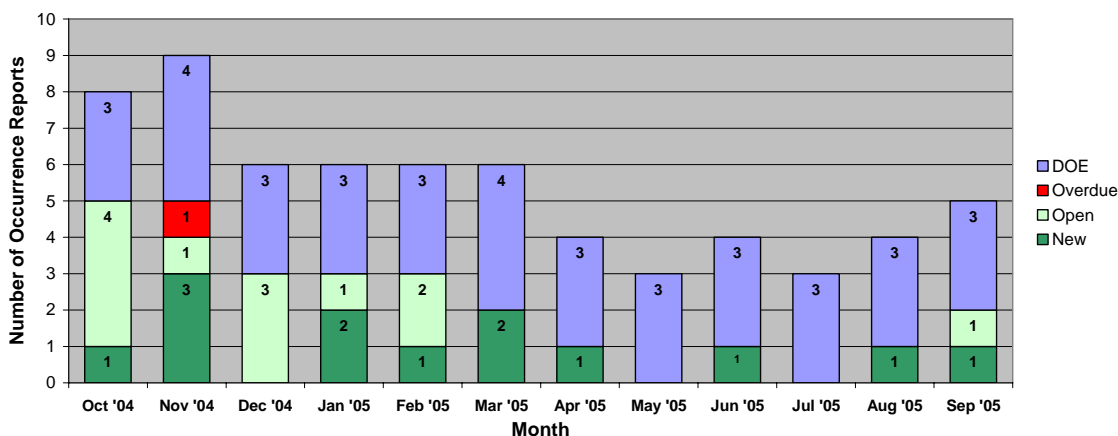


**Exhibit 10** depicts Tier 1 inspection findings by Directorate.

The Tier 1 data is reviewed and discussed at quarterly workshops with ES&H Coordinators and/or Tier 1 coordinators/leaders. The collection and analysis of this information is a relatively new process and continues to be refined.

#### IV. ORPS Activities

**Exhibit 11: BNL ORPS Report (End of Month) Trend**



**Exhibit 11** depicts the ORPS Report trend for the last 12 months. Reports are shown in various states to include: awaiting DOE approval, rejected by DOE, overdue for submission to DOE, in progress (open), or new report issued. No adverse trend is noted. The following three reports (dating back to 1999) are still awaiting approval by DOE Program Managers:

- SO-CH-BH-BNL-BNL-1999-0021, “Liquid Nitrogen Dewar Overpressure”

- NE-CH-BH-BNL-BNL-2001-0030, “Misclassification of Radioactive Material Shipped Offsite”
- NE-CH-BH-BNL-BNL-2003-0003, “Receipt of Radioactive Material Shipment exceeds 49 CFR 173.443 Package Contamination Limits”

The following is a summary of the BNL’s ORPS Coordinator’s significant activities during the fourth quarter of FY 2005:

- Facilitated a quarterly Categorizer’s Workshop (#2005-02) on July 8, 2005. The goals of this workshop are to
  - Evaluate and improve the BNL Occurrence Reporting Program; and
  - Maintain a baseline categorization process such that reportability decisions are both valid and consistent.
- Facilitated Tier 1 Workshop (#2005-03) on July 14, 2005. The goals of this workshop are to
  - Review ESH&Q (Tier 1) Inspection tracking/trending data at the organizational and/or institutional levels;
  - Identify Laboratory-wide issues and program vulnerabilities/gaps and share information to facilitate lessons learned in process/program effectiveness;
  - Discuss corrective actions taken and evaluate their effectiveness; and
  - Identify the path forward toward continual improvement, the potential institutional impact and the need for institutional corrective action(s).
- Participated on a team, which developed a “Submit a Lessons Learned” web application. The new application includes a prompt for feedback on the value of published LL Communications. The application was rolled out of July 29, 2004.
- Issued Quarterly Performance Report, 3rd Quarter FY2005 (August 1, 2005).
  - No new areas for management attention were identified. The Material Handling Program was identified as an area needing continuing management attention.
- Facilitated Causal Analysis concerning DOE-BHSO Assessment of BNL Industrial Hygiene Program (8/23/05)
- Facilitated Hazardous Materials Transportation System Management System Maturity Evaluation Workshop (8/24/05)
- Completed the training of a new ORPS Categorizer (09/06/05)
- Facilitated Occupational Medicine Management System Maturity Evaluation Workshop (9/12/05)
- Updated occurrence report EM-BH-BNL-BNL-2005-0009 “Recurring Railcar Events” to a significance category “R” recurring report (9/30/05)
- Submitted lessons learned 2005-CH-BNL-ES-001 “Noise Guidelines Exceeded” to the DOE lessons learned database (9/30/05)

## V. New Area Requiring Attention

**Recurring Railcar Events:** On 9/29/2005 a meeting was facilitated by the Laboratory Occurrence Reporting Coordinator to review/discuss the recent history of

railcar events at BNL and the path forward concerning occurrence reporting. At this meeting a decision was made by the Environmental Restoration Projects Director (based on frequency and potential consequence) to re-categorize occurrence report EM-CH-BH-BNL-BNL-2005-0009 to an "R" Recurring occurrence report based on the following railcar events, which include both DOE Reportable and Non-reportable Occurrences:

1. 08/08/2005, Unplanned Railcar Movement/Derailment, Significance Category (SC)3 (EM-CH-BH-BNL-BNL-2005-0009), which has been Updated to an R" Recurring occurrence report titled "Recurring Railcar Events."
2. 01/05/2005, Empty Railroad Car Derailed (Non-reportable Occurrence)
3. 09/16/2004, Inadequate Rail Safety Procedures, SC4 (SC-CH-BH-BNL-BNL-2004-0018)
4. 09/08/2004, Train Car Derailment, SC4 (EM-CH-BH-BNL-BNL-2004-0016)
5. 09/03/2004, Empty Railroad Car Derailed at BNL Track Switch (Non-reportable Occurrence)

There will be no further railcar movement at BNL until appropriate corrective actions have been implemented.

## **VI. Area Requiring Continued Attention**

**Material Handling:** Recurring material handling problems were reported in the second quarter of FY 2004 in ORPS "R" Report SC-CH-BH-BNL-BNL-2004-0005 and in NTS-CH-BH-BNL-BNL-2004-0002, "Recurring Material Handling Problems." During the first quarter of FY 2005, a DOE conducted an assessment of the BNL Integrated Safety Management (ISM) System and identified many of the same material handling personnel training and qualification issues cited in the above reports, as well as other areas of concern that involve hoisting and rigging. The Update/Final ORPS report was issued on March 15, 2005, and includes the results (relevant to material handling problems) of this assessment.

Continued monitoring is needed to ensure that all corrective actions are tracked to completion as scheduled in the Laboratory Assessment Tracking System (ATS) and are effective in resolving the noted concerns.

## **VII. References**

DOE Guide 231.1-2, *Occurrence Reporting Causal Analysis Guide*, August 2003.

DOE Order 231.1A, *Environment, Safety and Health Reporting*, August 2003.

Nonconformance Tracking System Report Number: NTS-CH-BH-BNL-2004-002,  
“Recurring Material Handling Problems.”

Occurrence Report Number: SC-CH-BH-BNL-BNL-2004-0005, “Recurring Material  
Handling Problems.”

Quarterly Performance Report, 3rd Quarter FY 2005.